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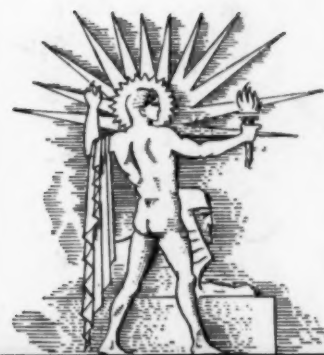
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DETROIT

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE.



September 6, 1941

Synthetic Weather

See Page 151

A SCIENCE SERVICE PUBLICATION

Do You Know?

Cactus fiber is now used in padding upholstery of some motor cars.

Highest of high hats are feathered ceremonial masks worn by men in New Guinea—14 to 19 feet high.

To construct *Howard Field*, the Army's newest airfield in Panama, 10,000 acres of jungle have been cleared.

The extent and effect of Chicago's lake breezes will be investigated at the University of Chicago's Institute of Meteorology.

Very heavy rains in the Southwest last winter supplied cactus plants with enough moisture to last through three years of drought.

A new government plant to produce maps for national defense use from air photographs is being established in Virginia, near Washington.

A Canadian stationmaster has found good use for rice thrown at weddings—he sweeps it up, sorts out the confetti and feeds the rice to birds.

The United States plans to stock up on castor bean seed adapted to growing in this country, in case industries require more of the drying castor oil.

Over one-eighth of the fuel oil used in heating a home can be saved by properly adjusting the burner with an instrument called a flue gas analyzer, says the Department of Agriculture.

QUESTIONS DISCUSSED IN THIS ISSUE

Most articles which appear in SCIENCE NEWS LETTER are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.

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ZOOLOGY—ARCHAEOLOGY

What sort of meat did Iraq's earliest inhabitants like? p. 156.

Russia's river transportation is handicapped by the fact that so many waterways run north-south, whereas heaviest traffic is east-west.

"Early Norse and medieval vessels," says the Franklin Institute, "had one steering oar on the right side of the boat, and this came to be known as the steering side, steering board, and later starboard."

Pennsylvania State College is using a chemistry laboratory on wheels to travel to centers in the state where the College is training high school graduates for technical defense jobs.

To increase visibility of dark cellar steps, paint experts suggest a border of white paint around the edge of each step, and a solid white coat for the last one.

SCIENCE NEWS LETTER

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PSYCHOLOGY

World's Greatest Thoughts Contributed by Young Men

Study of Great Philosophers of Past 500 Years Reveals the Later Works Have Less Chance of Greatness

THE WORLD'S greatest thoughts are usually contributed by young men between the ages of 35 and 39, Dr. Harvey C. Lehman, of Ohio University, told the American Psychological Association meeting in Evanston, Ill.

The popular idea that great philosophers are ancient graybeards was blasted by Dr. Lehman when he made a survey of the ages at which philosophers of the past 500 years, generally acknowledged as eminent, produced their best works. The greatest number of these best works were produced during their authors' thirties.

Although these great philosophers have gone on producing profound books, in some instances until past the age of 90, these later works are less likely to be highly regarded by posterity than are those produced by the same men in their thirties.

The philosopher, Dr. Lehman's study revealed, seems also to need a practice period. Before the age of 30, he may be writing philosophical works. But the test of time is unlikely to put them on a par with what he writes a few years later.

The group of philosophers selected for study by Dr. Lehman because their greatness is conceded by writers of the history of philosophy included only one woman—Miss M. W. Calkins.

Few great philosophical works, he found, are the work of collaborators.

Science News Letter, September 6, 1941

Hormone Reduces Sex Drive

PHYSICIANS who find it necessary to prescribe some medication to temporarily reduce abnormal sex tension in women patients were urged to give a trial to one of the sex hormones, progesterone. Although it is a sex hormone, progesterone was successfully used to reduce, rather than to increase, sexual excitability in experiments on monkeys reported by Dr. Josephine Ball, of Johns Hopkins Medical School.

Science News Letter, September 6, 1941

X-Rays Cripple Baby's Mind

AN UNBORN child who was made an idiot by X-ray treatments of the mother was reported to the American Association for Applied Psychology, meeting with the American Psychological Association.

The baby, who suffers from the type of mental deficiency known to physicians as microcephalic idiocy and more popularly spoken of as "pinhead," was described to the meeting by Dr. Edgar A. Doll, of the Training School, Vineland, New Jersey.

Science News Letter, September 6, 1941

Test Picks Out Unstable

FLASHING lights, bright glare, and sounding buzzers can be used to pick out from among would-be airplane pil-

ots, the emotionally unstable boy who might crack up emotionally under strain of flight, Dr. Paul M. Fitts, of the University of Tennessee, told psychologists at the meeting of the American Psychological Association.

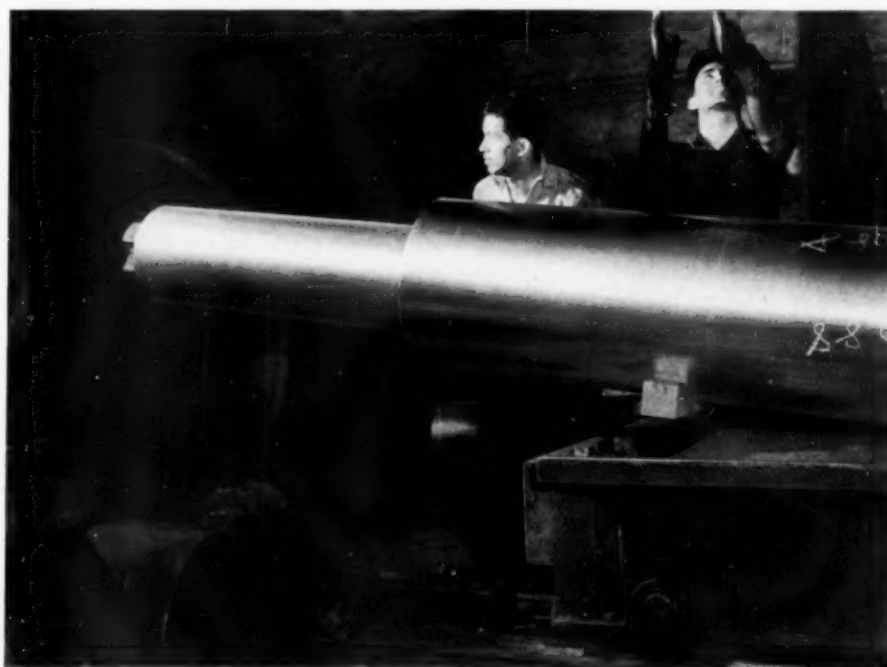
When a boy cannot do his job consistently if it becomes more and more complex and irritating, he is the sort who may break, Dr. Fitts said. He has devised a test which will reveal this weakness in a candidate before he risks his safety in the air.

The candidate faces a panel containing four small bright lights and he holds a "joy stick," which is the steering wheel of a pilot. Whenever one of the lights is turned on, he moves the stick in the corresponding direction.

This much is easy. But then distractions are introduced. A bright glare blinks on and off at irregular intervals right in the middle of the candidate's field of vision. A buzzer is sounded intermittently. His performance under these difficult conditions will show up his emotional stability or lack of it, Dr. Fitts indicated.

The test was tried out on groups of Civil Aeronautics students, athletes, and well adjusted college students and also on a group of neurotic cases.

Science News Letter, September 6, 1941



ROLL

This object which looks so much like a big gun, is really a weapon in America's industrial defense—a seven-and-a-half ton roll for rolling out sheet steel and plate. The roll, which was photographed in Mackintosh-Hemphill Company's Pittsburgh plant, is specially made to withstand the rigors of all-out production.



FIRE BOMB

This German incendiary bomb was dropped on Liverpool but failed to go off. Minus its thermite charge, it was sent to this country for study at General Electric laboratories at Schenectady.

MEDICINE

Transfusions of Old Blood May Cause Reaction

TRANSFUSIONS with blood from "blood banks" may cause more or less serious reactions in patients, if the blood used has been "on deposit" too long, states a London surgeon, Dr. E. C. O. Jewesbury. As quoted in the *Journal of the American Medical Society* (Aug. 23), Dr. Jewesbury reports untoward symptoms ranging in severity from simple fever of 100 degrees to "fever with a definite rigor."

These symptoms sometimes occur also after transfusions of fresh blood, but are more frequent when stored blood more than ten days old is used. In a few cases, an outbreak of skin rash was noted, and there was one case of jaundice. Principal cause of the trouble seems to be the breakdown of old red blood cells. Proper preservatives at least partially offset this.

The London doctor points out that there is now less occasion to depend on stored blood, "as plasma or serum, which can be stored for months, can be given as an emergency measure when whole stored blood is not available."

Science News Letter, September 6, 1941

PSYCHIATRY

Men Who Break in Army Life Problem to Army Physicians

More Than Half the Beds in Military Hospitals Are Filled With Patients With Neuropsychiatric Ills

MEN UNFIT psychologically to stand up under the discipline and emotional strain of military life but who have gotten by the watchful eyes of selective service medical officers are now proving a burden to the medical service of the Army.

These men, many of them, are not "crazy." But they simply cannot make good in close association with other men, under strict discipline, and "roughing it." They break and go into a hospital bed.

More than half the beds in military hospitals in the United States are occupied by patients with nervous or mental diseases, according to Lieut. Col. William C. Porter, of the U. S. Army Medical Corps. These beds are often urgently needed for physically ill men.

The Army has no provision at present for any sort of limited service for these men after they have partially recovered. For this reason, they must be kept in the hospital until they are discharged from the service or until their recovery is complete enough so that they can return to full duty.

Col. Porter estimates that about one-fourth of all the beds in well established general hospitals in the Army are occupied continuously by such patients, keeping the space immobilized for any other purpose.

It is not easy to discharge a soldier of the United States Army for military disability. His rights must be protected. His claims to compensation considered. Often it may take as long as two or three months to get a man who has broken down completely out of the service and out of his hospital bed. Medical facilities, each month, are tied up to the extent of thousands of patient-days.

A remedy for the situation is seen by some psychiatrists in a provision for limited service for men convalescing from a nervous breakdown or for those who appear to be approaching the breaking point.

This plan is already being used successfully by the British and Canadian forces where there is a greater shortage

of man-power than we seem likely to face.

Victims of stomach ulcer also should have a period of light duty following a severe attack, it has been suggested. This illness is due, partly at least, to nervous strain. The stomach ulcer patient is not the sort of individual who tries to get out of doing his duty in the Army. Typically, they are intense, conscientious hard workers whose attacks may have been brought on by excesses of work and worry. A let-up may be their only hope of remaining useful in the Army. Yet it is not necessary for them to take up needed space in the hospital.

British and Canadian practice is to put the man with peptic ulcer on light duty. If he breaks again there, he is sent home.

This is a serious problem with the British, for stomach ulcers and other similar peptic disorders disable more men than any other medical cause. About one-fourth of all medical cases are peptic cases. Apparently, in this war, as in days of old, an Army marches on its stomach.

Science News Letter, September 6, 1941

ZOOLOGY

Arctic Reindeer Healthier Than Domestic Cattle

REINDEER in the Canadian Arctic, transplanted a few years ago from the Alaskan herds, are much healthier than stabled domestic cattle, and they are thriving and multiplying at a great rate, Dr. Seymour Hadwen of the Ontario Research Foundation told members of the American Veterinary Medical Association meeting at Indianapolis.

Tuberculosis and contagious abortion, twin plagues of cattle in civilized countries, do not trouble the reindeer, Dr. Hadwen stated. Average age at mating, for does, is two years, though some large and rapidly developing individuals mate when they are one year old. In a well-managed herd on a good range, a herd doubles in three years.

Science News Letter, September 6, 1941

PUBLIC HEALTH

Conference Recommends \$1,800,000 Anti-Plague Fund

**Federal Health Service to Finance One-Half;
Surgeon General Warns of Danger of U. S. Quarantine**

A \$1,800,000 anti-plague campaign, one-half to be financed by federal funds and the other half by states, cities and counties, was recommended by the Plague Control Conference called in Salt Lake City by Surgeon General Thomas Parran, U. S. Public Health Service.

All state health officers of the Pacific and Mountain states and North Dakota and representatives of the Public Health Service attended the conference.

Deaths of two boys from plague this summer, increase in plague among wild rodents and the eastward spread of the infection in these animals prompted calling of the conference.

Surgeon General Parran emphasized the potential danger to citizens of the communities and to soldiers in concentrations and maneuvers in 13 states in which wild rodents or rats are now infected with plague and the possible spread of the infection to midwestern states, noting the reappearance of infection in rats in the San Francisco Bay area and its new appearance in squirrels of Colorado and North Dakota.

The persistence and spread of the disease in spite of the present efforts of the Public Health Service may also, he said, create an increased burden to our foreign commerce through quarantine measures which may be imposed against us under provisions of international sanitary treaties to which the United States is signatory.

The conference recommended expenditure of a minimum of \$1,800,000 to:

1. Expand the public health service and state surveys to determine the location of infected rodents;
2. Conduct an educational program among people as to the nature and dangers of the disease;
3. Institute and conduct organized extermination of rats, execute ratproofing measures and control the disposal of garbage which serves as food for rats in cities, villages and about military establishments;
4. Destroy wild rodents in areas in which infection is found;
5. Establish zones free of wild rodents about cities, villages and areas of military

activities to prevent possible spread of the infection through them to rats.

The control of rodents is to be carried out with the technical assistance of the Public Health Service mobile laboratory units, said Dr. N. E. Wayson, director of the U. S. Public Health Service Plague Laboratory at San Francisco. These laboratories-on-wheels will engage in collection of rodents, dry hunting and trapping and examination for infection followed by poisoning and gassing in burrows of remaining animals.

Science News Letter, September 6, 1941

PUBLIC HEALTH

Public Health Prevention Fights Against Plague

By BERTRAM P. BROWN, M.D.

**Director, California State Department of
Public Health**

PUBLIC HEALTH prevention, science and sanitation permit the people of the western states to live safely with plague.

Since the first human epidemic in the United States was recorded in 1900, plague has been found in rats and wild rodents in 10 western states, yet only rare scattered human cases now occur. Plague is primarily a disease of rodents. The common mode of transmission is via the bite of a bloodsucking insect, usually the flea.

Effective public health measures include traveling laboratories, rodent suppression, rodent proofing of buildings and public education concerning the danger of handling wild rodents.

Trucks equipped as field laboratories are the reconnaissance forces in the battle against plague. Operated by the U. S. Public Health Service, California and several other states, their purpose is to find rodent infection.

Rodents are killed, combed for fleas and dissected by the field crews. Animals which appear suspicious, and fleas, are sent to a central laboratory. If plague is found, rodents are eradicated in the lo-

● RADIO

Thursday, September 18, 2:45 p.m., EST

On "Adventures in Science", with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Prof. Thorfin Hogness, of the University of Chicago, will give a roundup of the Symposium on Vitamins, one of a series of scientific symposia being held there as part of the celebration of the University's fiftieth anniversary.

Listen in each Thursday.

cality, a preventive measure which must be repeated each year, since new arrivals may become infected by fleas which remain in the burrows. Besides rats, plague has been found in squirrels, chipmunks, gophers, prairie dogs, field mice and rabbits.

Center of research is in the San Francisco bay region in the laboratories of the U. S. Public Health Service, University of California's Hooper Foundation and the California Department of Public Health. An immune serum prepared from horses is available for treating the rare human cases. Laboratory experiments with mice indicate that sulfathiazole may be useful.

Although man has learned to live in comparative safety with a once dreaded disease, preventive measures must continue unabated. For so long as plague smolders in the rodent population, there is the potential danger that insects will carry the disease to man.

Science News Letter, September 6, 1941

BOTANY

German Shrub May Yield Gutta-Percha

Possible evidence of German anxiety over supplies of overseas origin is given in a recommendation to try a native European shrub, known as the warty spindle-tree, as a source of gutta-percha, rubber-like gum used in dental work. Prof. Constantin von Regel, who makes the suggestion in an issue of *Die Umschau* just received, states that the plant has been under investigation for similar purposes in the USSR.

The European species of spindle-tree are close botanical relatives of the American shrub known as burning-bush or waahoo, fairly common in woodlands in the eastern half of the United States. Although sometimes planted as an ornamental, it has never been regarded in this country as having any particular economic value.

Science News Letter, September 6, 1941

RESOURCES

No Magnesium Shortage; Its "Ore" Is Ocean Water

**With New Manufacturing Plants Taking Ore From Sea,
Total 1941 Production Will Be Thirty Million Pounds**

THERE will never be a shortage of magnesium. An inexhaustible supply of this lightweight champion of the metals is on hand. Its "ore" is ocean water. New manufacturing plants are now extracting from the sea far more of this strategic material than is obtained from all other sources in the United States.

Thirty million pounds is the expected total production this year, and 90 million pounds next year, as against only seven million pounds total in 1939 by the old methods. Introduction of the new method jumped the figures at once to 12 million pounds (nearly double) in 1940.

"Even though the concentration of magnesium in sea water is quite low, there are about four and one-half million tons of magnesium in a cubic mile of sea water. Thus only one cubic mile of sea water will furnish 90 million pounds of magnesium metal each year for 100

years!" These were the words of Dr. R. H. Harrington, metallurgist in the General Electric Research Laboratory, spoken in an address to the G-E Science Forum.

Three years ago Germany was the main producer of magnesium and was using it plentifully as an "Ersatz" or substitute. Now we are doing the same.

Magnesium is only two-thirds as heavy as aluminum. Its principal use is as a component of aluminum alloys. Magnesium alloys themselves are in a number of ways inferior to aluminum alloys, but nevertheless can be substituted for them in a multitude of small parts, housings, cases, plates, gadgets, etc., where severe conditions are not encountered. This is true both for defense and for non-defense industries. They are superior, on account of their lighter weight, for rapidly moving parts.

Science News Letter, September 6, 1941

INVENTION

Italian Process Makes Pure Magnesium From Common Ores

MAGNESIUM, white metal important in defense and warfare, because of the lightness of its alloys, as well as its use in incendiary bombs, may be made easily from many common ores with a new process.

This is claimed in the specifications accompanying U. S. Patent 2,251,968, which has just been granted for the method to the inventor, Carlo Adamoli, of Milan, Italy. Rights on the American patent are assigned to the Perosa Corporation of Wilmington, Del.

Present methods of preparing the metal use electrical means in separating it from its compounds, but these are not used in the Adamoli process. From common magnesium-containing ores, such as talc, magnesite, dolomite, etc.,

is obtained metal which, quoting the patent, "is free from any impurity having its origin either in the ores or in the reagents which have been used, the process being performed in the course of a single direct operation and avoiding the losses of metal which are ordinarily incurred when it is necessary to melt the metal because it is not compact enough."

The process is a cyclic one, in which the material goes through again and again. The ores are mixed with hydrofluoric acid to form magnesium fluoride, a reducing agent is mixed with them, and the magnesium metal goes off in a vapor, to be condensed to the solid form. Then the hydrofluoric acid is regenerated and mixed with more ore.

Uses Wasted Heat

HEAAT from an airplane engine, whether air or liquid cooled, is utilized to increase the lifting power of the craft, in a patent (number 2,252,528) granted to Igor I. Sikorsky, famed airplane designer, and his colleagues Michael E. Gluhareff and Roger W. Griswold, II. Rights are assigned to United Aircraft Corporation.

A principal feature is that the heated exhaust gases, helped by the liquid or air that has cooled the engine, generates steam to operate a turbine. This turns a fan that exhausts a stream of air over the top of the wing. This, it is said, overcomes some of the adverse effects due to "skin friction" and the viscosity of the air flowing along the surface. Result is an increased efficiency of the wing, in terms of greater lifting power. Since this would give bombing planes a longer range with the same amount of fuel, the invention may have important military applications.

Summer Skiing on Brushes

YOU can ski in the summer time on a slide made of brushes, the bristles pointing upwards, according to the invention of Heinrich Ermel, of Berlin, Germany. Rights on his patent, number 2,251,927, are assigned to the Riddell Skislide Company of America.

Hog bristles, it is suggested, may be employed, and if necessary they can be made more slippery by wax or mineral oil. Citing advantages, the patent relates:

"A slide of this character always affords a reliable guide for the skis; the skis can be positively pressed into the layer of brush bristles and may also be tilted for performing loops. The bristles bent more or less towards the surface of their carrier will always return into their upright position."

Improved Corn Picker

AN IMPROVEMENT in corn-picking machinery is claimed in patent 2,252,159, issued to R. H. Blank of Walcott, Iowa. Distinguishing feature in Mr. Blank's invention is a series of spiral ribs wound round a pair of gradually converging rollers. Near the top of the rollers, where the actual picking operation takes place, the spirals are bent into a reversal of their course up to that point.

Geared to rotate toward each other, the rollers take hold of the drooping corn ears by their tips. At the point where the spirals reverse, they snap the ears from the stalks, at the same time

stripping them clean of husks. The ears drop into a container beneath, whence they are carried by a conveyor belt to the accompanying truck or wagon.

Science News Letter, September 6, 1941

PUBLIC HEALTH

Infantile Paralysis Spreads In East Central States

South, Where Outbreak Has Been Worst, Has Small Increase; Spreading in Pennsylvania, New York

GREATEST increases in infantile paralysis are now in Pennsylvania, New Jersey and New York, according to reports received by the U. S. Public Health Service.

In Pennsylvania, the number of new cases jumped from 45 in the week ending Aug. 16 to 82 in the week ending Aug. 23. New Jersey's cases increased from 17 to 25 and New York's from 49 to 66.

In the South, where the outbreak has been worst, the increases were small for the week of Aug. 23. Alabama actually had a drop in new cases from 82 to 78. Tennessee reported 39 instead of 37 as for the previous week. Kentucky's were 25 as compared with 15. Georgia had 74 instead of 69.

Maryland and Virginia reported increases from 16 to 21 for Maryland and from seven to nine for Virginia. The District of Columbia had six new cases, although eight were reported there during the previous week.

In Ohio, there was an increase from 37 to 44. Illinois reported an increase from 18 to 23. In Minnesota, the number of new cases was just the same as for the previous week—14. Michigan had a decrease from 16 to only six.

The sleeping sickness (encephalitis) outbreak seems to be subsiding in the northern midwestern states, but it took an enormous jump up across the Canadian border in Manitoba. There, 127 new cases were reported for the week of Aug. 22—a leap from only 22 cases the previous week. This province also reported 162 new cases of infantile paralysis for the same week.

The number of new cases of sleeping sickness in North Dakota dropped from 340 to 120 for the week ending Aug. 23. South Dakota's dropped from 44 to 38, and Minnesota's from 121 to 95.

Texas reported 9 new cases of sleeping sickness for the week ending Aug. 23. It is not known in Washington whether this is the same sort of encephalitis as in the outbreak in the northern states, which is suspected of being Western equine variety. Texas has reported an outbreak among animals there of the Eastern equine type, a very different disease.

Colorado, which has been reporting occasional cases of human sleeping sickness in past months, now reports larger

numbers of cases. For the week ending Aug. 16, 32 cases were reported. For the following week, the number was 20.

Maryland reported one case of "epidemic encephalitis." What type of sleeping sickness this is also remains unknown.

Science News Letter, September 6, 1941

ENGINEERING

Power Apparatus Tested In "Arctic" Laboratory

See Front Cover

IN ORDER to be sure that circuit breakers will function properly even when coated with ice, Westinghouse laboratory scientists subject them to the synthetic winter shown on the front cover of this week's SCIENCE NEWS LETTER.

In addition to this test for electrical equipment, they are also struck by laboratory lightning, exposed to artificial "showers" for weeks at a time and subjected to powerful electric currents.

Science News Letter, September 6, 1941

To find out which grasses cows prefer at different seasons, researchers have planted *cow cafeteria* lines with various pasture grasses in 15-foot-wide strips.



LEARN ENGINE TEST

These apprentices who are learning how to operate airplane engine test house apparatus will assist operators when big Pratt and Whitney aircraft engines are being produced in a new plant of Ford at the Rouge.

RESOURCES

Automobile License Plates May Be Good For Two Years

EXPECTING a shortage of steel, many States are considering issuing future automobile license plates for two or more years, according to information received by the American Automobile Association.

Michigan is considering two years, Connecticut, five years, and even a permanent license plate has been proposed. Each year, according to one plan, a small strip of steel showing the new year number would be bolted over the old number.

Another plan is to substitute paper stickers for the plates.

Use of a plastic in place of steel has not been considered because there is also a shortage of plastics.

Painting over the old plates must also be discarded because such painting would cost around eight cents against two to three cents for new plates.

While all these things are still under discussion, one thing appears quite certain, namely, that the old plates will be taken up when the new plates are issued, thus conserving the steel they contain.

Science News Letter, September 6, 1941

MATHEMATICS

Search for Mathematical Talent as Defense Measure

DEPARTMENTS of mathematics in our schools and colleges should seek out young men and women who have mathematical talent, whether they are taking mathematical courses or not. This is among the recommendations of the Subcommittee on Education for Service of the War Preparedness Committee of the American Mathematical Society and the Mathematical Association of America.

A shortage of engineers and physicists is declared at hand which should be brought to the attention of boys of mathematical ability in the high schools in order that they may extend their mathematical training. Even if they do not become engineers or physicists, the training will be of value to them.

Boys of intelligence, now in grades 11 and 12, who have not had substantial training in mathematics, the mathematicians recommend, should be offered an abbreviated treatment sufficient to train them for entrance into skilled industry, the Army or the Navy.

Opportunities exist in the Army and Navy for mathematically trained young men. For mathematically trained women there are semi-mathematical fields, as for instance, business statistics, accounting, and drafting. The continual drain on manpower, the committee says, may create openings for women in these fields.

Fundamental training in classical mathematics in lieu of short-cut emergency courses was recommended. The men should be over-trained rather than under-trained. The training required is in elementary and intermediate mathematics rather than in advanced mathematics. Very thorough advanced and technical training is given in the academies at West Point and Annapolis.

Science News Letter, September 6, 1941

ASTRONOMY

New Comet Spotted By Four Different Astronomers

A NEW comet is in the heavens. It was first discovered by Astronomer duToit at Harvard's southern station at Bloemfontein, South Africa, on July 18, and later independently spotted on July 25 by Astronomer Neujmin at Simeis Observatory in the Soviet's Crimea.

News of the discovery has been bulletined to American observatories by Harvard Observatory, which is the astronomical clearing house for this part of the world.

It has now been picked up by an astronomer in this country, Dr. George Van Biesbroeck of Yerkes Observatory. His data indicate that the comet is now in or near the constellation of Capricorn, which is almost due south and half-way from horizon to zenith at 9 p.m.

The duToit-Neujmin comet has also been reported by a Belgian astronomer, Dr. M. Delporte of the observatory at Uccle, near Brussels. Dr. Delporte's dispatch was relayed to Harvard College Observatory in this country through the international clearing house for astronomical information at Copenhagen, Denmark, which continues to function despite the war.

The comet was variously observed as of 9th, 10th, and 11th magnitude, too faint to be seen without a telescope. It is in the vicinity of the constellation of Aquila, the eagle. More observations will be needed to determine whether it will become visible to the unaided eye.

Science News Letter, September 6, 1941

IN SCIENCE

ZOOLOGY

Scientists to Follow Fur Seal Herd to Sea

WHEN the great fur seal herd of the Pribilof islands next puts to sea, at the end of its breeding season, it will be accompanied by a group of scientists of the U. S. Fish and Wildlife Service, in a specially equipped vessel now being outfitted. Object of the expedition will be to obtain further data on the life habits of these highly valuable animals for use in their protection.

By international treaty in 1911, the United States undertook the supervision of the Pribilof herd, largest group of fur seals in the world, then threatened with extinction through reckless hunting at sea. Last October, Japan gave notice of intention to abrogate the treaty, which she had a legal right to do, but stated at the same time that she was prepared to conclude a new agreement.

Science News Letter, September 6, 1941

ORNITHOLOGY

Artificial Light Induces Pheasants to Lay Early

THE POULTRYMAN'S trick of using artificial light has been used successfully in getting early "settings" of pheasant eggs, by Prof. Thomas Hume Bissonnette of Trinity College and Albert George Csech of Shade Swamp Sanctuary at Farmington, Conn. (*Journal of Wildlife Management*, October.)

Mongolian, ring-neck and black-neck pheasants were used in the experiments. Lights were turned on above their pens at the beginning of January and continued until late in April. All three species began laying fertile eggs in February, while similar groups, left unlighted at night as controls, did not begin to lay until in April.

So determined were the light-treated pheasants to produce eggs that they often laid them in depressions in the snow, and on occasions the hen birds even became frozen into the ice on the floors at night and required breaking out in the morning.

Science News Letter, September 6, 1941

NE FIELDS

NUTRITION

Soldiers Help to Set New Food Fashions

TAKING a cue from the Army, civilians in the United States may soon be buying their groceries in the form of food powders in increasing quantity. Since a pound of potatoes in powdered form equals eight pounds of spuds in the round, saving which can be effected in precious transportation space is tremendous.

Newest dehydrated foods developed by the Quartermaster Corps' research laboratory in Chicago are pronounced far more satisfactory in flavor and food value when they are cooked than dehydrated beans, peas, and onions that were shipped overseas to the AEF in World War Days. War Department officials predict that soldiers will like these new condensed foods well enough to influence American food habits in general.

The dehydrated foods are especially important for troops in Iceland, Newfoundland and other distant posts, where transportation of bulky food is a problem.

The Department of Agriculture is working on a special program of research in California to improve methods and equipment for dehydrating vegetables, with special emphasis on such protective foods as tomatoes, leafy vegetables, carrots and green beans.

Science News Letter, September 6, 1941

FORESTRY

Forest Fires Detected With Polarized Light

FOREST fires will be spotted more easily if watchers make their observations through colored filters that polarize the light, experiments by George M. Byram, of the Appalachian Forest Experiment Station, Ashville, N. C., have shown.

The detection of distant forest fire smokes from high mountain lookout posts is made very difficult by the atmospheric haze which, even on clear days, obscures distant objects and makes them look blue. By the use of colored polarizing screens the haze can be penetrated.

Mr. Byram, in tests reported to *Science* (Aug. 22), used a red filter with polarizing screen. Red filters are in common use for cutting out the blue rays of the haze, but the addition of the polarizing screen greatly increases the effect.

He photographed from Mt. Mitchell in North Carolina high cirrus clouds almost 350 miles away in western Kentucky. Only the curvature of the earth prevented a range greater than this.

The polarizing screens used are similar in action to the polaroid sunglasses. When set in the proper way, a polarizing screen stops polarized light, allowing only ordinary light to pass through. The light of the blue haze is polarized to the extent of 50% to 70% on clear days. In use, the forest fire spotting screen is set to stop this light.

The blue haze and the polarization of the light are caused by very fine particles suspended in the air. When the particles are larger, the amount of polarization is less. Hence these screens are ineffective for penetrating fog, which consists of relatively large particles of water.

Science News Letter, September 6, 1941

INVENTION

Slot Machine Delivers Frankfurters on Rolls

FRANKFURTERS automatically cooked and delivered, together with a hot bun while you wait, after the insertion of a coin, is a novelty afforded by an invention recently patented. The frankfurters are electrically cooked as they pass down the machine, turning as they pass and never touching the grill. The apparatus is dust proof, provides means for removing the fat that drips from the sausages, and has other advantages. The only operation left to the consumer or the attendant is to place the frankfurter in the bun and lo—a hot dog. (Edward L. Benedict, N. Y. C., Patent No. 2,244,670).

Science News Letter, September 6, 1941

INVENTION

Plastic Garden Seeder Does Not Get Out of Order

AGARDEN SEEDER, made of plastic, operates by a master wheel with no chains or gears to get out of order. Disks permit accurate spacing of seeds and a special brush attachment prevents cracking or grinding of seeds. (Gregg Mfg. Co., St. Paul.)

Science News Letter, September 6, 1941

MEDICINE

U. S. Belladonna Root As Good as Bulgarian

BELLADONNA root extracts are good medicine for patients suffering the after-effects of "sleeping sickness" labelled parkinsonism, and U. S. Pharmacopoeia belladonna root is just as good as the Bulgarian variety first used when this treatment was introduced.

These, in brief, are the conclusions of reports from Dr. Howard D. Fabing and Dr. Meyer A. Zelig, of the University of Cincinnati College of Medicine, and Dr. J. C. Price and Dr. H. Houston Merritt, of Boston City Hospital and Harvard Medical School. (*Journal, American Medical Association*, Aug. 2)

The treatment is not a cure for the condition, but brings about great improvement in about one-half the moderately severe cases and one-fifth or one-fourth of the very severe cases.

This seems like especially good news just now when belladonna root from Bulgaria may be impossible to obtain and when an outbreak of encephalitis or "sleeping sickness" in North Dakota threatens to leave more patients suffering the tragic after-effects of this disease. The particular effects for which the belladonna extracts are helpful are the rigid muscles, mask-like faces, peculiar gait and palsy.

Science News Letter, September 6, 1941

ORNITHOLOGY

More Birds in Pastures That Are Not Overgrazed

PROPERLY cared for grazing land not only keeps cows contented; it supports larger populations of small birds, Gale Monson of Albuquerque has discovered.

To study the relation of overgrazing to reduction in bird numbers, four 160-acre plots were selected. Two of them were within an area formerly overgrazed but now recovering its range value under the scientific management of the Soil Conservation Service. The other two were in a nearby area still subject to severe overgrazing.

Careful censuses of the bird populations of all four areas were made. It was found that the two overgrazed plots were home to 92 birds representing 12 small-bird species, while the scientifically managed, better covered plots yielded a count of 186, with 14 species represented.

Science News Letter, September 6, 1941

GENERAL SCIENCE

Science for Defense

It Is Comforting to Know in World's Emergency That Scientists Are Hard at Work on Essential Tasks

Excerpts from a luncheon talk by Watson Davis, Director of Science Service, Washington, D. C. before the Department of Science Instruction, National Education Association, Hotel Somerset, Boston, Mass.

OVERSHADOWING almost everything else these critical days is the application of almost all our energies and our science to rescuing the world from forces of darkness. Our science and our civilization are on the defensive. We must assume the offensive. There is greater need now for clarity in thought, teaching and doing than in more peaceful times.

Creative and aggressive application of science is called for to meet the present emergency. Research, experimentation and invention are as important to national defense as the airplanes, ships, tanks, and guns used by the military forces. In a large measure the weapons and the means of protection against weapons are created by science.

The scientist should not be blamed for the use to which the world puts his brain children, any more than a mother of a soldier should be taken to task. The airplane is first a means of peaceful transportation, and only incidentally used to carry death-dealing bombs. Our mechanized army is merely an adaptation of the millions of the useful automotive vehicles that fill our highways. The butcher knife is no less necessary and useful because a few misguided individuals use it to slit human throats.

Scientists Hard at Work

It is comforting to know that in the present world situation scientists are hard at work on essential research tasks of vital importance to our defense effort. In almost every university and industrial laboratory there are teams of scientists hard at work on secret problems that will aid our defense efforts on all fronts.

Many of these problems are directly concerned with aerial, sea or land warfare, but many of them will bring important benefits to the population at large. Some of the social benefits of the defense effort, put into use by the neces-

sity of the emergency, should be long lasting.

Typical of these benefits to the whole population is the addition to flour and bread of vitamins and minerals which will heighten morale and benefit health. The most important of these additions is vitamin B₁ or thiamin which is generally lacking from our daily diet, and which is needed every day to keep us from becoming irritable, morose and uncooperative. This vitamin, riboflavin and iron are being added to "enriched" bread and flour, as the result of the cooperation of scientists and the milling and baking industry.

Secret Weapon?

Dr. Russell M. Wilder, of the Mayo Clinic, Chairman of the National Research Council's nutrition committee, believes that Hitler's "secret weapon" may be the taking away of vitamin B₁ or thiamin from the diet of the conquered countries. A little thiamin deficiency is associated with irritability, but much or long-continued deficiency is more likely to result in depression, exhaustion and feelings of inferiority. The Germans are said to be making the fullest use of the newest knowledge of nutrition in the prosecution of this war, particularly, in reference to the excellence of the nutrition of their armed forces. Rumor has it, according to Dr. Wilder, that the Nazis are making deliberate use of thiamin starvation to reduce the populations of the occupied countries to a state of depression and mental weakness and despair which will make them easier to hold in subjugation.

Scientific research has been greatly accelerated in the government's many scientific and engineering laboratories, such as those of the National Advisory Committee for Aeronautics. In a very large measure the modern airplane is a creation of the engineers and scientists of the NACA, who added many miles per hour to the speed of war and peace planes without cost of extra fuel or power by making them aerodynamically smoother. Research is rushing in the many laboratories of the National Bureau of Standards, the U. S. Bureau of Mines and the

Geological Survey. The mining experts and geologists are searching intensively for new deposits that can supply much-needed strategic minerals, such as tungsten, manganese, mercury, tin, etc.

New organizations have been created to do research for the military forces. There is the Office of Scientific Research and Development that contacts and coordinates vital defense investigations. The National Defense Research Committee has over 200 secret projects under way. These involve the science facilities at 80 of our large universities and personnel at 30 large industrial laboratories. It is estimated that a fourth of the physicists of the nation are in defense research and many of them are working on NDRC projects. The Army and Navy undertake much research directly but in these urgent times the normal military research of the nation has been increased many fold by the extensive organization of projects under the NDRC.

The important function of receiving and evaluating the many suggestions offered by the public to help our defense effort has been undertaken by the National Inventors Council. This group of \$1-a-year engineers and experts, with the aid of a staff located in the Department of Commerce in Washington, has already received and reviewed over 25,000 suggestions, some of which are already being put to use by the Army and Navy.

Medical and psychological experts are being mobilized for defense research by the National Research Council, the operating agency of the National Academy of Sciences.

New Ideas Wanted

One important fact may not be appreciated by the public. It is that the officers of the Army and Navy charged with making us strong in a military way are open-minded as to new ideas. As a matter of fact, they are eager for new ways to do things. If a new weapon is developed you may be sure that they will use it.

Psychological aspects of defense are more important in these times than ever before. Experts on human behavior, or misbehavior, perhaps it should be called, can help in our national protection against ideas and ideologies that do vio-

lence to our cherished ideals of democratic methods and procedures.

Unprincipled force wielded by the totalitarian dictators must be fought by all the weapons at our command. It may well be that we can develop and apply moral and psychological weapons that will prove to be as important as men, airplanes, ships and tanks.

More normal scientific developments of outstanding importance are continuing at an accelerating rate. Some of these fundamental and peaceful researches may be retarded by the concentration of personnel and laboratories upon military problems. But there is cross-fertilization between the emergency and the more normal activities. Some discovery for war purposes may be extremely useful when the world becomes peaceful.

Important Developments

Picking a few of the most important of the newer developments in various science fields:

1. The chemical cures of diseases, through the sulfa drugs. The pneumonias and other various infections, dozens of them, have lost their deadliness, thanks to these chemical treatments.
2. Frequency modulation (FM) radio promises a revolution in broadcasting.
3. The newer knowledge of nutrition, the further exploration of the vitamins, carrying with it the possibility of banishing hidden hunger from the land.
4. Science's newer attacks upon mental disease, such as shock treatment for schizophrenia.
5. Continued development of aviation, making it the foremost method of speedy transportation, as constructive for peace as destructive for war.
6. The development of synthetic plastics—made from air, water, coal, oil, gas, salt, lime—to compete with metals, silk, glass, and perform many new tasks in our plastic world.
7. New understanding of the extent and composition of the universe and the nature of the atom.
8. The use of new methods in genetics to produce bigger and better kinds of animals and plants for our farms.

Opportunity for Teachers

Science teachers have an immense responsibility in this troubled world. Human beings must know how to think straight and scientifically if the world is to be rescued from the plague of intolerance, emotional ignorance and aggression that afflicts it. Sane and effective persons have their abilities and person-

alities molded by home, community and school.

In the school, science must not be confined to the science courses. Science must take the offensive and penetrate its methods and its content into English, history, language, and even athletic curricula. The science courses must not be diluted and distorted by the old authoritarian cult of decreed knowledge, smacking of the false, outmoded, revealed wisdom of the ancients (and the Nazis) which has done so much to block human progress. The experimental attitude must prevail, the courses must be taught experimentally, the teachers must be experimentally minded in a perpetually unfinished experimental world. The science teachers must transmit to teachers in the other subjects the beneficent antibodies of straight thinking that do so much to create an effective civilization.

We should rejoice in the teaching tools that are available these days: Texts that spur the student onward in his exploration of the universe around him, exhibitions and museums of both historical and current content on a "do-it-yourself" basis, radio programs, phonograph records, motion pictures, that condense into minutes content that might take weeks to absorb by older methods.

Newspapers and magazines provide supplementary reading for science courses, new every day, that must not be overlooked. Science magazines, such as the weekly SCIENCE NEWS LETTER, have their important place for both teacher and student. Science Service has also made it possible for anyone to receive each month, and keep for his own, highly interesting and educational THINGS

of science, an educational service that has been received with much enthusiasm.

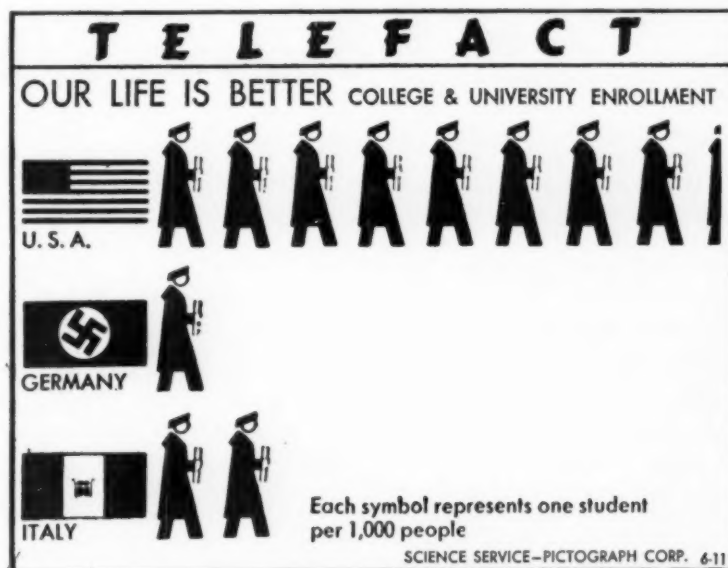
Paramount to all the helpful and almost necessary accessories to science teaching is the scientific attitude or method. Without the scientific way of thinking and doing all else is futile and misdirected.

The reason we teach science and take science to the people, as I see it, is because we are convinced that it is the successful method of doing and thinking. Much of our battle upward is a conflict between science and superstition. It is astronomy vs. astrology, fact vs. hearsay, experiment vs. dogma, planning vs. trusting to luck.

In these perilous times for so many areas of the world, we can not reaffirm too often that the scientific way is the democratic way. The methods of science will make democracy work if they find their way to the public. Tests of reason and experience can weed out the charlatan, the incompetent and the unworthy in high and low places in our people's business, if we see to it that democracy is free to operate. Freedom to practise the scientific method in the everyday world as well as in the laboratory is of importance equal to freedom of the press and assembly.

When we see the cramming of thoughts into dictator-wrought molds, the exiling of the brains and bodies of the human cream of great nations, the suppression of even the hollow shell of freedom over the great areas of this earth, we are thankful for the conditions under which we live and which we are resolved to maintain.

Science News Letter, September 6, 1941





RECORD CHANGER

Phonograph records are played from the bottom as well as the top with this new record changer. As it starts, the bottom record of the stack drops into position, and is played in the usual way. When finished, the record is lifted, the direction of turning is reversed, and the other side is played from the bottom. That over, the record is deposited in a felt-lined compartment, a new one drops into place, and the process starts over. When the last record has been played from the bottom, the mechanism is automatically stopped.

ZOOLOGY—ARCHAEOLOGY

Sumerians Liked Pork, Bones From Ruins Show

IRAQ'S earliest known inhabitants, the Sumerians, were fond of pork. They also ate a good deal of mutton and beef, and smaller quantities of game and fish.

These facts are brought out in a study of animal bones found in buried city ruins at Tell Asmar, a site near the Tigris river a few miles from Baghdad. The study was made for the Oriental Institute of the University of Chicago by Dr. Max Hilzheimer, noted German zoologist. (Reviewed, SNL, this issue.)

Groupings of the bones found in the ruins of houses, palaces and temples indicated 14 or 16 pigs, 10 gazelles, 6 sheep or goats, 5 wild asses or onagers, 4 or 5 cattle, 3 deer and 2 dogs, besides a number of bones of unidentifiable species of birds and fish.

The most interesting thing about the finds is the high proportion of pigs. You couldn't sell pork for a cent a ton in that neighborhood now: the inhabitants are all Mohammedans.

Science News Letter, September 6, 1941

One way to tell a huckleberry. If it crackles when you eat it, it's a huckleberry, not a blueberry.

SEISMOLOGY

Earthquake Risks Can Be Lessened by Right Building

Made Land and Fills, Especially When Water-Soaked, Are Dangerous; Structures on Rock Usually Safer

EARTHQUAKES can neither be prevented, hastened nor delayed. They cannot even be reliably predicted. Nevertheless something can be done about them, declares Dr. Harry O. Wood, research associate of the Carnegie Institution of Washington.

The things that can be done, Dr. Wood points out, are to learn all we can about where earthquakes are most likely to occur, what kind of ground is safest to build on, and what kinds of construction best resist the wrecking effects of quakes. Considerable data on all these points have already been accumulated.

It is known, for example, that made land and fills, "especially when water-soaked, are certainly dangerous in some localities and probably everywhere; that loose water-charged natural ground is more dangerous than dry compact ground; that soft rock is less dangerous, and hard rock least dangerous of all. A well-designed and well-built structure on a good rock foundation near the source

of a strong earthquake is, in general, in much less danger than a poorly designed, poorly built structure on bad foundation ground considerably more distant from the source."

People tend to forget or disregard the lessons of past earthquakes, Dr. Wood complains. Most of the buildings that were wrecked in the Long Beach earthquake of 1933 were built after the San Francisco disaster of 1906. Had the lessons of that catastrophe been applied, most of the damage in the Long Beach area would not have occurred, he declares.

On some ground of known seismic proclivities, as for example in a narrow zone near the San Andreas fault, no important buildings at all should be erected. Elsewhere, all new buildings should be compelled to conform to earthquake-resisting specifications worked out by engineering specialists. In this way the risk can be gradually reduced to a minimum.

Science News Letter, September 6, 1941

BIOLOGY—PHYSICS

New Sonic Generator Kills Bacteria With Short Waves

A NEW generator, that kills bacteria and other microorganisms with very short sound waves, has been built at the University of California. The new device, developed by Prof. A. P. Krueger, consists of a nickel tube within a magnetic field, activated by electrical impulses. The tube is first elongated, then contracted by the alternate pulls of the magnets. So rapid is this oscillating motion that the nickel tube emits sound waves with a high frequency of 9,300 cycles a second.

The tone is deadly to bacteria and viruses. Prof. Krueger subjected staphylococci, bacteria that cause boils and carbuncles, to this penetrating sound. The

bacteria were all killed. Bacteriophage, a virus disease of bacteria, was also destroyed, and the cellular secretion from which bacteriophage is formed was made permanently inert.

Prof. Krueger's new generator was developed in the intensive study of bacteriophage which he has been carrying on for the past fourteen years. Dr. E. J. Scribner, research associate, and B. B. Brown, technical assistant, aided Prof. Krueger in his new sonic studies.

Science News Letter, September 6, 1941

The U. S. Army figures that it has saved 27,500 pounds of aluminum by using plastic handles for 500,000 knives.

PSYCHIATRY

Medical Association Issues Warning Against Operation

"Frontal Lobotomy," Which Makes Frontal Lobes Useless, Is Still in Experimental Stage, AMA Journal Says

WARNING against the widespread general use of a brain operation known to physicians as "frontal lobotomy" and publicized in recent years as a way of literally "cutting worry from the brain" is contained in a current *Journal of the American Medical Association* editorial. (Aug. 16)

Scientific knowledge is admittedly meager regarding the exact function of the important part of the brain, the frontal lobes. But claim has been made for this operation, which severs the fibers of both frontal lobes, and renders them useless, that it removes anxiety and impulses to commit suicide and murder.

"In spite of these 'improvements' in the mental condition of some patients," declares the editorial, "this operation should not be considered capable of transforming a psychotic personality into a normal one. Even in our present state of ignorance concerning the frontal lobes, there is ample evidence of the serious defects produced by their removal in nonpsychotic persons. It is inconceivable that any procedure which

effectively destroys the function of this portion of the brain could possibly restore the person concerned to a wholly normal state.

"In a few instances frontal lobotomy has resulted in convulsions, which did not appear until months or even years after the operation."

The operation, the editorial states, should be considered as in an experimental stage. The evidence of its effects so far do justify further experimentation. But "its use may well be restricted to persons who have received the benefits, if any, of all less drastic forms of therapy that are recognized by modern psychiatry; to persons in whom there is no doubt, because of the long duration and the nature of the illness, that their condition is both serious and otherwise permanent."

The editorial warning is based on information brought to light in a panel discussion at a recent meeting of the American Medical Association in which specialists told of the good and bad effects resulting from the frontal lobotomy operation.

Science News Letter, September 6, 1941

MEDICINE

Pitchers' "Lame Wing" Due to Deposit on Joint

WHEN a veteran baseball pitcher (occasionally a youngster, too) suddenly develops a severe lameness in his "money arm" and is no longer able to throw his "fast one" because of the severe jab of pain he gets in his back shoulder muscles, he is likely to be suffering from the formation of a bony deposit on the bearing surface of his shoulder-joint very much like that which gives older persons arthritis, states Dr. George E. Bennett, member of the Johns Hopkins medical faculty. (*Journal, American Medical Association*, Aug. 16)

Part of the pain is felt in the shoulder

itself, and part is "referred" to the deltoid muscle, which is the broad, triangular muscle spreading out from the shoulder across the upper part of the back. This referred pain is due to the pressure of the bone accretion on a nerve, Dr. Bennett explains. It is possible to remove this bony growth by surgical operation, but this involves cutting loose part of the deltoid muscle, and is at best a risky procedure.

"My experience," Dr. Bennett states, "is not sufficient to advocate this operative procedure with the assurance that a baseball pitcher will be able to

resume his profession."

Less serious, though bad enough in their way, are injuries to tendons and the cup- or sac-like ligament that unites the upper arm bone and the shoulder-blade. When the powerful jerks that pitching involves cause nothing worse than local lesions (internal bruises), these can be taken care of by heat treatment—the "baking out" familiar to all athletes.

Sometimes the condition is worse, involving a frayed tendon. In certain locations this can be remedied by surgical treatment; in others, present surgical technique hardly justifies the risk, says Dr. Bennett.

Pitcher's sore arm frequently is caused not so much by local injury as by focal infections elsewhere, as in tonsils or at the roots of teeth. Or a local injury may be made worse by systemic poisoning resulting from such infections.

"Since professional athletes are human beings, not supermen, general health often plays a part in the disability and should be the first thought in the mind of the medical examiner," advises Dr. Bennett.

Science News Letter, September 6, 1941

CHEMISTRY

Transparent Gloves Contain No Sulfur

TRANSSPARENT gloves that give complete resistance against practically all organic solvents have recently been introduced, for industrial use. The material has great mechanical strength, and contains no sulfur, so it cannot tarnish metal surfaces. (*Resistoflex Corp. Belleville, N. J.*)

Science News Letter, September 6, 1941

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SCIENCE NEWS LETTER

1719 N St., N. W. Washington, D. C.

CHEMISTRY

Once Wasted Cottonseed Hulls Make New Plastic

Particularly High Degree of Elasticity Makes It Useful in Cotton Sheaves, Cabinets, Fountain Pens

COTTONSEED hulls, formerly worthless, are the raw material for a new plastic industry which is being developed at Knoxville, Tenn., as a result of researches by John F. Leahy and his staff of scientists at the University of Tennessee.

While commercially it will have to compete with plastics manufactured from other types of raw materials, Mr. Leahy says that it has many competitive advantages that will be hard for the others to overcome. It opens up another use for cottonseed which he thinks will be the main product of the cotton plant and the fiber the by-product.

Among other things, this plastic has a particularly high degree of elasticity. So much superior has it been found in this respect that it is getting an extensive use in cotton sheaves heretofore manufactured from wood. Southern spinning mills are already using 350,000 of these sheaves, creating a fine new market at the start. It has been found economical in the molding of radio cabinets, fountain pens, steering wheels, wallboard, etc.

Another advantage offered by cottonseed hulls as a raw material for plastics is their cheapness and the quantity and ease with which they can be assembled. At the oil mills where they have been separated from the cottonseed meats they are already in a movable, workable shape.

Heretofore these hulls have been practically worthless and haven't had even a nuisance value. They get in the way

at oil mills. Research shows that cottonseed hull bran is rich in pentosan from which a rare sugar, xylose, is made. Mr. Leahy believes that xylose may be carried a step further to get furfural. Furfural is a solvent used in the refining of lubricating oils. Also to purify rosin from pine stumps. Mr. Leahy believes that 350 pounds of furfural can be secured from cottonseed hulls as compared with 180 from oat hulls.

Science News Letter, September 6, 1941

ICHTHYOLOGY

Experiments Show Fish Are Sensitive to Cold

LIVING in cold ocean water is a matter of necessity rather than choice for many fishes, according to research conducted by Dr. Peter Doudorouf, University of California graduate. In fact, fish suffer from exposure to very cold water, even unto death.

Dr. Doudorouf describes experiments with the temperature reactions of various marine fish. He used a specially designed gradient tank wherein temperature of the water could be controlled. The resistance to cold and heat varied with the animals' normal temperature environment, but all experimental fishes adapted themselves much more slowly to cold than to heat. Many fish died from cold temperatures that were well above freezing point.

In another test, water in the one tank varied in temperature from warm to cold, and fish were allowed to swim

about and choose the most desirable temperature. Some preferred cool, others warmer water, according to their inherited inclinations, but all preferred warmer water than they were normally accustomed to live in.

"The selected temperatures were relatively high in comparison with those which occur in the natural habitats of the fishes," Dr. Doudorouf states. "Some influence of acclimatization upon the reactions was demonstrated, but the selected temperatures were to a large degree independent of past experience."

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ENTOMOLOGY

Trap For Silverfish Is Simple But Effective

AN INGENIOUS but simple trap that can be prepared in any home has proved to be the most effective way of ridding closets and basements of silverfish, cloth- and paper-devouring gray insect pests. Arnold Mallis, entomologist on the Los Angeles campus of the University of California, originated the clever trap and has proved its effectiveness by reducing the silverfish population of the University laboratories by several thousand.

A plain one-ounce ointment jar was given an outer jacket of adhesive tape so that the insects could get a foothold to climb up. Inside Mr. Mallis placed a teaspoonful of white flour, favorite food of silverfish. The pests climbed in avidly, then were trapped by their inability to climb the slippery inside glass walls of the jar.

Tests were extended by placing 100 jars with their taped outsides and flour bait in various laboratories on the campus. At the end of three months 1000 silverfish had been collected, one single room yielding 167 of the captive pests.

This simple method of control is more effective than poisons or fumes, according to Mr. Mallis. As silverfish live and propagate from seven to eight years, they are hardy pests. But it should not be difficult to clean out an infestation with the flour bait trap, and to capture any newcomers thereafter.

"Further tests with trapping are being continued," Mr. Mallis said. "Professors in whose rooms the jars were distributed have already commented upon the decreased number of silverfish. This technique may prove to be one of the best ways of getting rid of the pest."

Science News Letter, September 6, 1941

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SCIENCE NEWS



Rat-Repelling Odor

KEEPING rats away from stored grain with a "skunky" smell that makes them afraid, is the feat accomplished by two chemists, Leonard A. Ford of the Minnesota State Teachers' College at Mankato, and Donald F. Clausen of the Hubbard Milling Company.

The two chemists were confronted with the problem of keeping rats away from stored grain in sacks. They knew that rats fear skunks and ferrets, and will leave the premises these predatory animals inhabit.

They knew also the chemical basis of the strong, musky odor of these two animals. It is a compound called n-butyl mercaptan. So they tried it out, first on the food of caged white rats. The rats refused the food, became restless and excited, and even fought each other. They would not touch the food until the odor had disappeared.

Then a search was made for a substance which would hold the odor for the longest possible time. Best out of a considerable list proved to be honey, which retained the scent up to six months, well in excess of the time usually spent in storage by grain and commercial feedstuffs.

The only rats with noses so tough that they were not consistently repelled by the n-butyl mercaptan were those on a city dump. The experimenters conjecture that these animals had become so used to the mercaptans produced by the natural fermentation of garbage that the synthetic scent had relatively little effect on them.

Science News Letter, September 6, 1941

Among Britain's evacuees, some *problem children* have cropped up, and for these experimental hostels have been established to provide special care.

PUBLIC HEALTH

Priorities in Physicians As Well As in Materials

Action Taken To Prevent the Draining of Medical Skill From Many Local Communities to Their Harm

THE likelihood that there will be priorities in physicians and dentists as well as in defense materials appears in the statement from Federal Security Administrator Paul V. McNutt that plans have been approved for mobilizing physicians and dentists.

"The major principle of the plans, which recognizes the need for a systematic approach to the mobilization of the medical resources of the country," Mr. McNutt stated, "has the full sanction of the American Medical Association, as well as that of the Health and Medical Committee of my office, and steps are being taken through appropriate channels to obtain necessary enabling legislation."

"Already," the Administrator said, "the demands for physicians and dentists imposed by the needs of the army and navy particularly, and to only a slightly lesser degree, by the major defense industries, have resulted in recruitment

policies which are seriously draining many communities of their medical personnel. In the event of full mobilization, the problem will inevitably become critical.

"Obviously the principal need is for a general recruitment program which takes into account such factors as the distribution of physicians and dentists in relation to the population of the communities in which they reside, their training and experience, and their availability for service in the defense program."

"To administer the mobilization of medical and dental personnel, a single recruitment and assignment agency would be set up in cooperation with the army, navy, and the Public Health Service," Mr. McNutt said.

"The plans for this service are designed to meet," the Administrator emphasized, "both military and civilian needs."

Science News Letter, September 6, 1941

PSYCHOLOGY

Advises Against Urging Immigrants to Stay Foreign

A WORD of caution to educators who go so far as to urge immigrant groups in America to keep alive the songs, languages and customs of foreign countries was sounded by Dr. Otto Klineberg, psychologist and anthropologist of Columbia University, before the Williamstown Institute of Human Relations.

Many second-generation immigrants much prefer to lose their old-country connections and become standard Americans, Dr. Klineberg stated, adding as "a word of caution":

"When this is the case, any interference, educational or otherwise, does not appear to be justified."

Discussing objections raised to cultural diversity, he advised that the dominant American group should respect, and even welcome, cultural diversity, since Ameri-

can life is built on contributions from many races and nations, but that once minority groups are acquainted with their cultural heritage they should be left to decide what to keep alive and build into America.

That cultural diversity works against national unity or national morale was discounted by Dr. Klineberg, who pointed out that there can be unity without uniformity. People with devotion to American ideals, he states, may wish to sing Italian folk songs, eat Japanese food, or speak German. Cultural diversity, he declared, should not be held responsible for the "small, though potentially dangerous, minority" who feel a greater bond with their country of origin than with the land they now live in.

Science News Letter, September 6, 1941

•First Glances at New Books

BOTANY

PLANTS IN THE HOME—Frank K. Balthis—*Macmillan*, 172 p., illus., \$2.50. With the season fast approaching when outdoor gardening will be impossible over the greater part of the country, this book is particularly timely. It tells how to raise house plants, how to make the most of them when they are healthy and how to nurse them through their ailments. For those who can go in for something a bit elaborate, there are chapters on miniature hothouses and indoor rock gardens. There is even a chapter on plants for men; it is noticeable that most of the species recommended here are those that can survive a good deal of neglect!

Science News Letter, September 6, 1941

ZOOLOGY—ARCHAEOLOGY

ANIMAL REMAINS FROM TELL ASMAR—Max Hilzheimer; translated by Adolph A. Brux—*Univ. of Chicago Press*, 52 p., illus., \$2. See page 156.

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PSYCHOLOGY

AN INVESTIGATION OF REACTION TIME IN OLDER ADULTS AND ITS RELATIONSHIP TO CERTAIN OBSERVED MENTAL TEST PATTERNS—William Goldfarb—*Teachers College, Columbia Univ.*, 76 p., \$1.60. Based on a study of 168 adults ranging in age from 18 to 65 years furnished by WPA.

Science News Letter, September 6, 1941

TECHNOLOGY

STEEL SQUARE POCKET BOOK (6th ed.)—Dwight L. Stoddard—*Scientific Book Corp.*, 183 p., illus., \$1. Even a good many carpenters, probably, will be surprised to find in this little book the many things that can be done, the problems that may be solved, with that common tool, the steel square.

Science News Letter, September 6, 1941

CHEMISTRY

INTRODUCTORY COLLEGE CHEMISTRY—Joseph A. Babor and Alexander Lehrman—*Crowell*, 662 p., illus., \$3.50; **LABORATORY MANUAL FOR INTRODUCTORY COLLEGE CHEMISTRY**—Joseph A. Babor and Alexander Lehrman—*Crowell*, 276 p., illus., \$1.75. In contrast with their "General College Chemistry", published last year, which is intended for students who have had a year of preparatory school chemistry, this is intended, as the title indicates, for an introductory course. It replaces "Elements of General Chem-

istry", by Babor, Estabrooke and Lehrman, published in 1931. The laboratory manual follows closely to the text.

Science News Letter, September 6, 1941

MATHEMATICS

MODERN HIGHER PLANE GEOMETRY—Arthur S. Winsor—*Christopher Pub. House*, 214 p., \$2.25. "Clearly not intended for beginners", is the author's warning in the preface of this book. He explains that it gives "rather complete treatment of . . . modern plane geometry, by which is meant the results of modern thought in the development of the subject."

Science News Letter, September 6, 1941

ZOOLOGY

STUDIES OF SOME AMOEBAE FROM A TERMITE OF THE GENUS CUBITERMES—Joseph C. Henderson—*Univ. of Calif. Press*, 15 p., pls., 25c.

Science News Letter, September 6, 1941

MEDICINE

SCHIZOPHRENIA IN CHILDHOOD—Charles Bradley—*Macmillan*, 152 p., \$2.50. This comprehensive review of the subject, intended for psychiatrists, pediatricians and others concerned with the guidance of abnormal children, shows all too clearly the need for much more research to find means of saving from their tragic fate the children, fortunately few in number, who suffer from the now hopeless mental sickness, childhood schizophrenia.

Science News Letter, September 6, 1941

TECHNOLOGY

KEEPING YOUR HOUSE IN REPAIR—A. Frederick Collins—*Appleton-Century*, 314 p., illus., \$2.50. Comprehensive, clear, and workable directions are given in this book for doing all those little odd jobs about a house for which ordinarily an expensive carpenter, mason, plasterer, painter, paperhanger, glazier, plumber, gas-man, electrician, etc., would have to be hired.

Science News Letter, September 6, 1941

ETHNOLOGY

CULTURE ELEMENT DISTRIBUTIONS: XVI, GIRLS' PUBERTY RITES IN WESTERN NORTH AMERICA—Harold E. Driver—*Univ. of Calif. Press*, 90 p., maps, \$1.

Science News Letter, September 6, 1941

BOTANY

THE GENUS NEMOPHILA NUTT—Lincoln Constance—*Univ. of Calif. Press*, 57 p., 75c.

Science News Letter, September 6, 1941

GEOLOGY

CRATER LAKE, THE STORY OF ITS ORIGIN—Howell Williams—*Univ. of Calif. Press*, 97 p., illus., \$1.75. The story of a fire-mountain that no white man ever saw that collapsed in a geological *Ragnarok* to form the basin of one of the most beautiful lakes in the world, simply told and convincingly illustrated.

Science News Letter, September 6, 1941

GEOGRAPHY—GEOLOGY

THE SCENIC TREASURE HOUSE OF OREGON—Warren D. Smith—*Binfords & Mort*, 176 p., illus., \$2. Description of the beauty of a state renowned for its striking and varied scenery, by one who can see through the scenery into the bones of the mountains, on which the beauty is built. The account is spiced with bits of lively humor here and there.

Science News Letter, September 6, 1941

ANTHROPOLOGY

TEMPORAL SEQUENCE AND THE MARGINAL CULTURES—John M. Cooper—*Catholic Univ. of Amer.*, 69 p., 75c. Discusses the role of marginal peoples in shedding light on man's cultural stages, and suggests a working hypothesis for historic research in anthropology.

Science News Letter, September 6, 1941

ENGINEERING

PUBLIC WORKS ENGINEERS' YEARBOOK, 1941—*American Public Works Assn.*, 407 p., \$3.50. Problems of sewage disposal, traffic congestion, parking and the role of cities in national defense are treated in this volume, which includes the proceedings of the 1940 Public Works Congress in Detroit and the Western Regional Conference in Los Angeles.

Science News Letter, September 6, 1941

OCEANOGRAPHY—BIBLIOGRAPHY

OCEANOGRAPHY OF THE NORTH PACIFIC OCEAN, BERING SEA AND BERING STRAIT: A CONTRIBUTION TOWARD A BIBLIOGRAPHY—Mary C. Grier, comp.—*Univ. of Washington*, 290 p., \$2.50. Listings are divided into three sections: first general oceanography, then animals (by phyla), then plants. The larger number of titles is in the section on animals.

Science News Letter, September 6, 1941

METEOROLOGY

AN IMPORTANT WEATHER ELEMENT HITHERTO GENERALLY DISREGARDED—C. G. Abbot—*Smithsonian Inst.*, 34 p., 15c. (Misc. Coll., Vol. 101, No. 1.) See SNL, April 26, 1941, p. 265.

Science News Letter, September 6, 1941